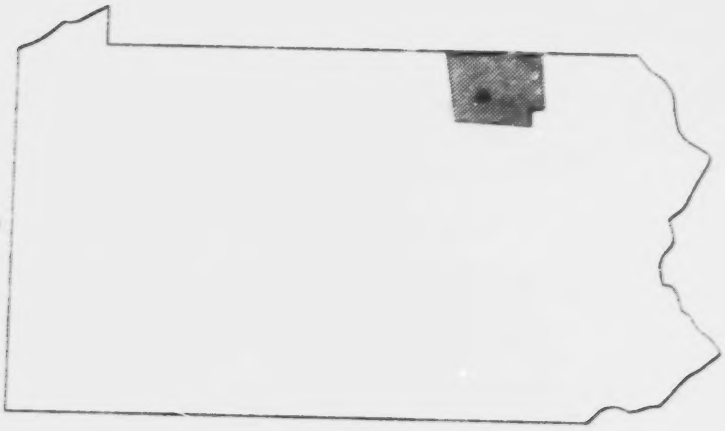
FLOOD INSURANCE STUDY

TOWNSHIP OF WEST BURLINGTON, PENNSYLVANIA
BRADFORD COUNTY



SEPTEMBER 5, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER 421122

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Flood Insurance Study Effective Date: September 5, 1990

Flood Insurance Study Revised:

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1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Township of West Burlington, Bradford County, Pennsylvania, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the Baltimore District of the U. S. Army Corps of Engineers (COE), for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2226, Project Order No. 27. This study was completed in September 1988.

1.3 Coordination

On December 12, 1985, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives of FEMA, the COE (the study contractor), Bradford County, and the township to determine the streams to be studied by detailed methods. During the course of the study, various Federal, State, and local agencies were contacted to obtain available mapping, survey data, flood history information, and other hydrologic data. Those contacted included the following: the Township of West Burlington, Bradford County, the Pennsylvania Departments of Transportation and Environmental Resources, the U. S. Geological Survey (USGS), the Soil Conservation Service (SCS), and the Susquehanna River Basin Commission (SRBC).

On September 26, 1989, a final CCO meeting was held with representatives of FEMA, the study contractor, and the township to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Township of West Burlington, Bradford County, Pennsylvania. The area of study is shown on the Vicinity Map (Figure 1).

Sugar Creek was studied by detailed methods for its entire length within the community. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through September 1993.

Tomjack Creek, Mill Creek, and several unnamed tributaries were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Township of West Burlington.

2.2 Community Description

The Township of West Burlington is located in the central portion of Bradford County in northeast Pennsylvania, approximately 20 miles northeast of the City of Lock Haven. It is bordered by the Townships of Smithfield and Springfield to the north, the Township and Borough of Burlington to the east, the Townships of Franklin and Granville to the south, and the Township of Troy to the west.

Sugar Creek originates in the Township of Columbia and flows towards the east through the Townships of Troy and West Burlington, the Borough and Township of Burlington, and the Township of North Towanda before it joins the Susquehanna River near the Township of North Towanda. Sugar Creek has a drainage area of approximately 152.6 square miles at Luthers Mills bridge, approximately 2.8 miles downstream of the downstream corporate limits of the township. The drainage areas upstream of the confluences of Mill Creek and Leonard Creek are estimated to be 102.9 square miles and 62.9 square miles, respectively.

2.3 Principal Flood Problems

The major source of flooding within the Township of West Burlington is Sugar Creek. There are no gages located on Sugar Creek within the township, and no data are available to provide information about the magnitude and severity of past flooding in the area. There are two USGS gages located outside the township that have long periods of record (gage No. 01531500, located on the Susquehanna River at Bridge Street bridge in Towanda; and gage No. 01532000, located on Towanda Creek near Monroeton). According to data from these gages, the flood of June 24, 1972 is the flood of record for the area. No attempts have been made to determine the return frequency of the June 24, 1972 flood for this area.

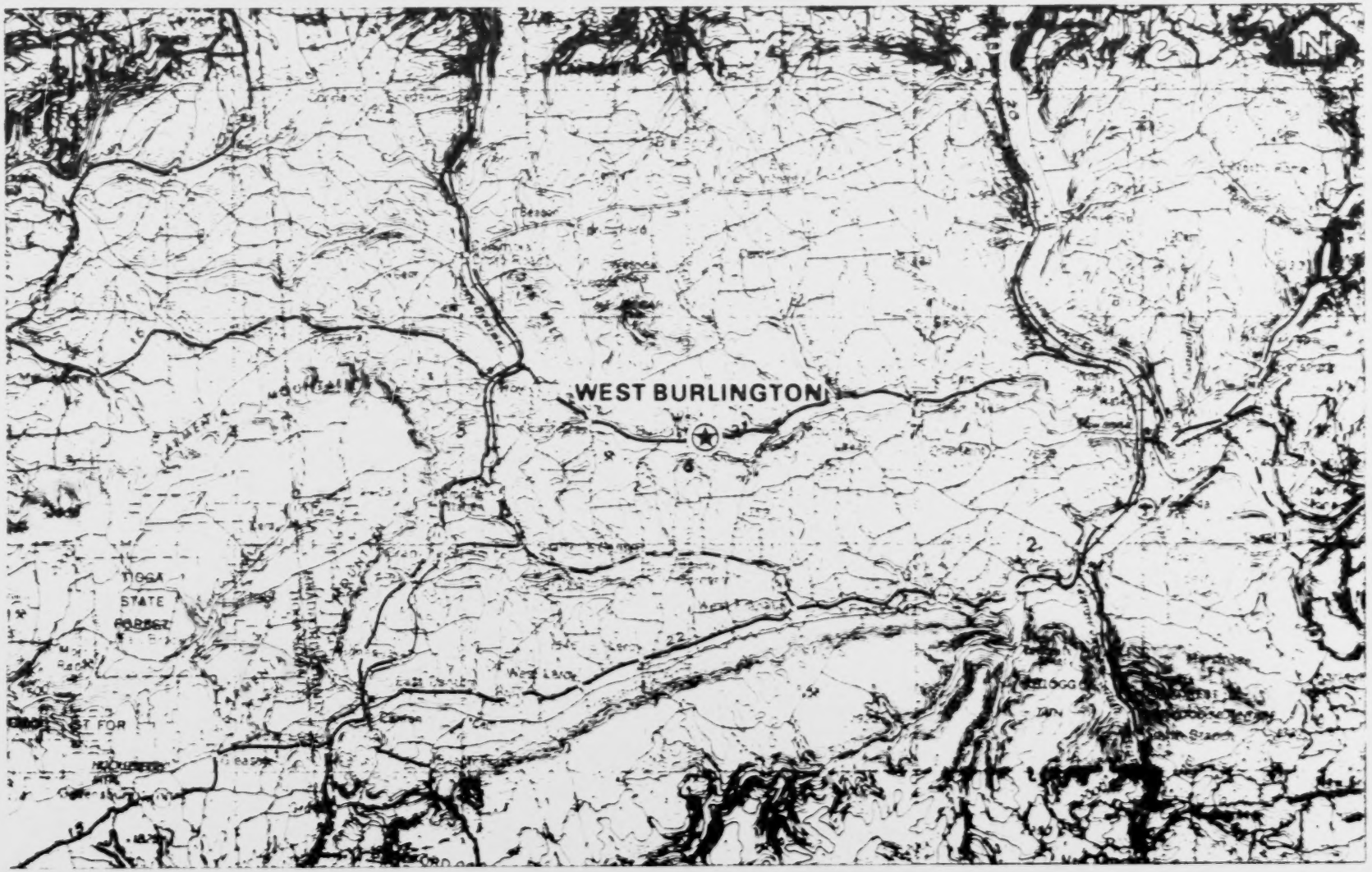


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF WEST BURLINGTON, PA

(BRADFORD CO.)

APPROXIMATE SCALE

VICINITY MAP

2.4 Flood Protection Measures

No local flood protection measures exist or are currently planned for the Township of West Burlington.

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. A flood event of a magnitude which is expected to be equaled or exceeded once on the average during any 100-year period (recurrence interval) has been selected as having special significance for floodplain management and for flood insurance rates. This event, commonly termed the 100-year flood, has a 1 percent chance of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding source studied in detail affecting the community.

Hydrologic analyses for Sugar Creek were prepared using the regional flood-frequency method developed by the COE (Reference 1).

A summary of the drainage area-peak discharge relationships for the stream studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
SUGAR CREEK		
At Luthers Mills bridge	152.6	33,600
Above the confluence of Mill Creek	102.9	26,300
Above the confluence of Leonard Creek	62.2	19,200

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sectional data for the backwater analyses were obtained from field survey and included stream and floodplain cross sections and structural geometry of all bridges, culverts, and other hydraulic structures.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 2). The starting water-surface elevation for Sugar Creek was taken from the Flood Insurance Study for the Borough of Burlington (Reference 3). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. The results of the water-surface computations are tabulated for the selected cross sections (Table 2).

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field reconnaissance of the stream and floodplain areas (References 4 and 5). Channel "n" values for Sugar Creek ranged from 0.030 to 0.040, and overbank "n" values ranged from 0.045 to 0.070.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For the stream

FLOODING SOURCE		STREAM CHANNEL			LEFT OVERBANK			RIGHT OVERBANK			100 YEAR FLOOD WATER SURFACE ELEVATION
CROSS SECTION	DISTANCE[1] (FT)	WIDTH (FT)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	WIDTH (FT)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	WIDTH (FT)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	
SUGAR CREEK											
A	0	59	10402	7.10	4223.71	19442	3.07	193.42	3040	3.30	884.0
B	1270	53	8177	8.02	772.06	21147	3.45	208.87	3279	3.51	890.7
C	2820	37	3775	11.3[illegible]	804.37	14[illegible]0	1.29	45.89	1381[illegible]	3.0[illegible]	892.3
D	3700	36	3[illegible]1[illegible]	[illegible].23	54[illegible].91	13[illegible]8	2.2[illegible]	479.48	[illegible]941	2.07	893.3
E	4560	43	3743	[illegible].47	1492.23	2213[illegible]	2.38	2[illegible].74	421	2.34	893.9
F	5970	79	[illegible]1[illegible]0	4.90	1750.[illegible]0	1[illegible]85[illegible]	1.3[illegible]	332.55	3750	1.[illegible]5	894.7
G	7890	68	10771	[illegible].[illegible].	791.31	12810	2.93	143.81	3220	3.15	896.8
H	9200	135	12[illegible]4	5.23	547.47	11[illegible]8	2.07	125.02	1[illegible]89	2.1[illegible]	898.[illegible]
I	11270	42	3792	7.13	1570.15	20744	2.45	148.[illegible]4	17[illegible]4	2.15	900.3
J	12[illegible]60	70	3881	5.15	183[illegible].53	1[illegible]45[illegible]	1.41	12[illegible]3.74	59[illegible]4	1.53	901.1
K	13370	58	77[illegible]9	11.44	1002.7[illegible]	8185	2.7[illegible]	17[illegible]4.43	10317	2.5[illegible]	901.5
L	145[illegible]0	74	109[illegible]7	13.84	389.32	44[illegible]3	3.85	898.27	10891	4.0[illegible]	90[illegible].[illegible]

[1] Stream distance above corporate limits
Feet (NGVD)

TABLE 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF WEST BURLINGTON, PA
(BRADFORD CO)

REGULATORY DATA

SUGAR CREEK

FLOODING SOURCE		STREAM CHANNEL			LEFT OVERBANK			RIGHT OVERBANK			100 YEAR FLOOD WATER SURFACE ELEVATION
CROSS SECTION	DISTANCE[1] (FT.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT/SEC)	
SUGAR CREEK											
M	15980	57	10430	14.00	134.83	8112	5.81	241.01	7254	5.48	910.0
N	17160	108	23352	5.81	923.93	12705	2.12	52.77	245	1.27	912.9
O	18140	105	9872	8.32	931.30	11200	2.08	229.40	5228	3.08	913.8
P	19200	90	10729	14.33	757.02	13028	5.15	14.17	343	4.72	915.9
Q	20320	23	3844	9.23	72.33	21520	3.45	28.40	937	4.34	918.3
R	21600	71	11537	6.91	36.88	760	2.08	439.97	14003	2.97	921.7
S	22120	40	2992	3.56	940.02	13708	1.31	478.70	9602	1.48	932.3
T	23120	60	3805	4.06	893.76	14265	1.63	801.02	8227	1.44	932.4
U	24140	77	7310	6.49	764.46	11463	2.32	477.98	7527	2.11	932.7
V	24990	61	7548	8.92	634.91	18327	3.36	26.26	424	2.90	933.5
W	25820	57	10168	13.27	603.79	7448	3.11	268.12	3684	4.48	934.8
X	27020	56	13488	18.26	409.87	8475	4.50	385.74	8387	4.20	939.6
Y	28700	58	3523	8.43	27.20	590	2.43	881.49	17107	2.80	945.4

[1]Stream distance above corporate limits
Feet (NGVD)

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF WEST BURLINGTON, PA
(BRADFORD CO)

REGULATORY DATA

SUGAR CREEK

studied in detail, the 100-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 20 feet (Reference 6).

For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using the Flood Hazard Boundary Map for the Township of West Burlington (Reference 7).

The 100-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

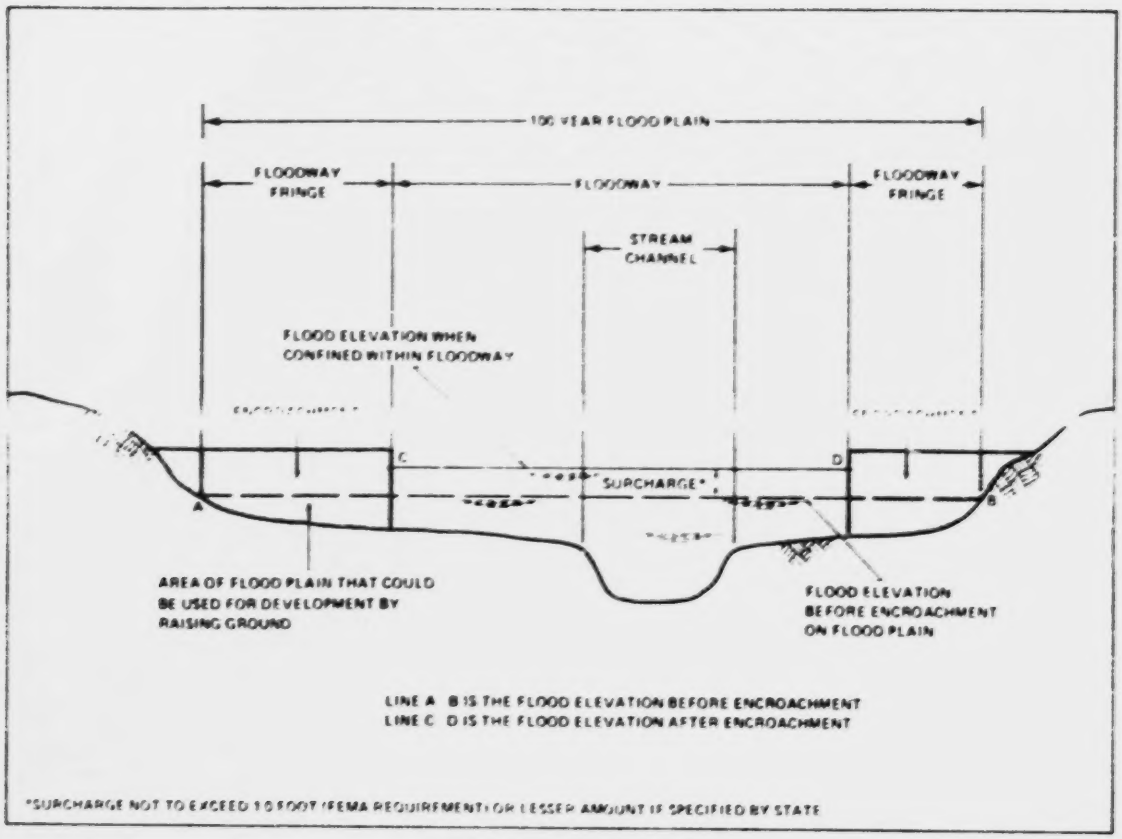
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

No floodways were calculated as part of this study.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 2

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain. The locations of selected cross sections used in the hydraulic analyses are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies have been prepared for the Borough of Burlington and the Townships of Springfield, Smithfield, Franklin, and Burlington (References 3, 8, 9, 10 and 11). The results of this study are in exact agreement with the results of those studies.

A Flood Insurance Study is currently being prepared for the Township of Troy (Reference 12). The results of that study will be in exact agreement with the results of this study.

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the Township of West Burlington (Reference 7).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Liberty Square Building (Second Floor), 105 South Seventh Street, Philadelphia, Pennsylvania 19106.

9.0 BIBLIOGRAPHY AND REFERENCES

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2. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, April 1984.

3. Federal Emergency Management Agency, Flood Insurance Study, Borough of Burlington, Bradford County, Pennsylvania, Washington, D. C., September 5, 1990.

4. Ven Te Chow, Open-Channel Hydraulics, New York, McGraw-Hill, 1959.

5. U. S. Department of the Interior, Geological Survey, Water-Supply Paper 1849, Roughness Characteristics of Natural Channels by Harry H. Barnes, Jr., Washington, D. C. 1967.

6. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 Feet:

7. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Township of West Burlington, Bradford County, Pennsylvania, June 18, 1976.

8. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Springfield, Bradford County, Pennsylvania, Washington, D. C., December 26, 1980.

9. Federal Emergency Management Agency, Flood Insurance Study, Township of Smithfield, Bradford County, Pennsylvania, Washington, D. C., September 1, 1986.

10. Federal Emergency Management Agency, Flood Insurance Study, Township of Franklin, Bradford County, Pennsylvania, Washington, D. C., September 24, 1982.

11. Federal Emergency Management Agency, Flood Insurance Study, Township of Burlington, Bradford County, Pennsylvania, Washington, D. C., September 5, 1990.

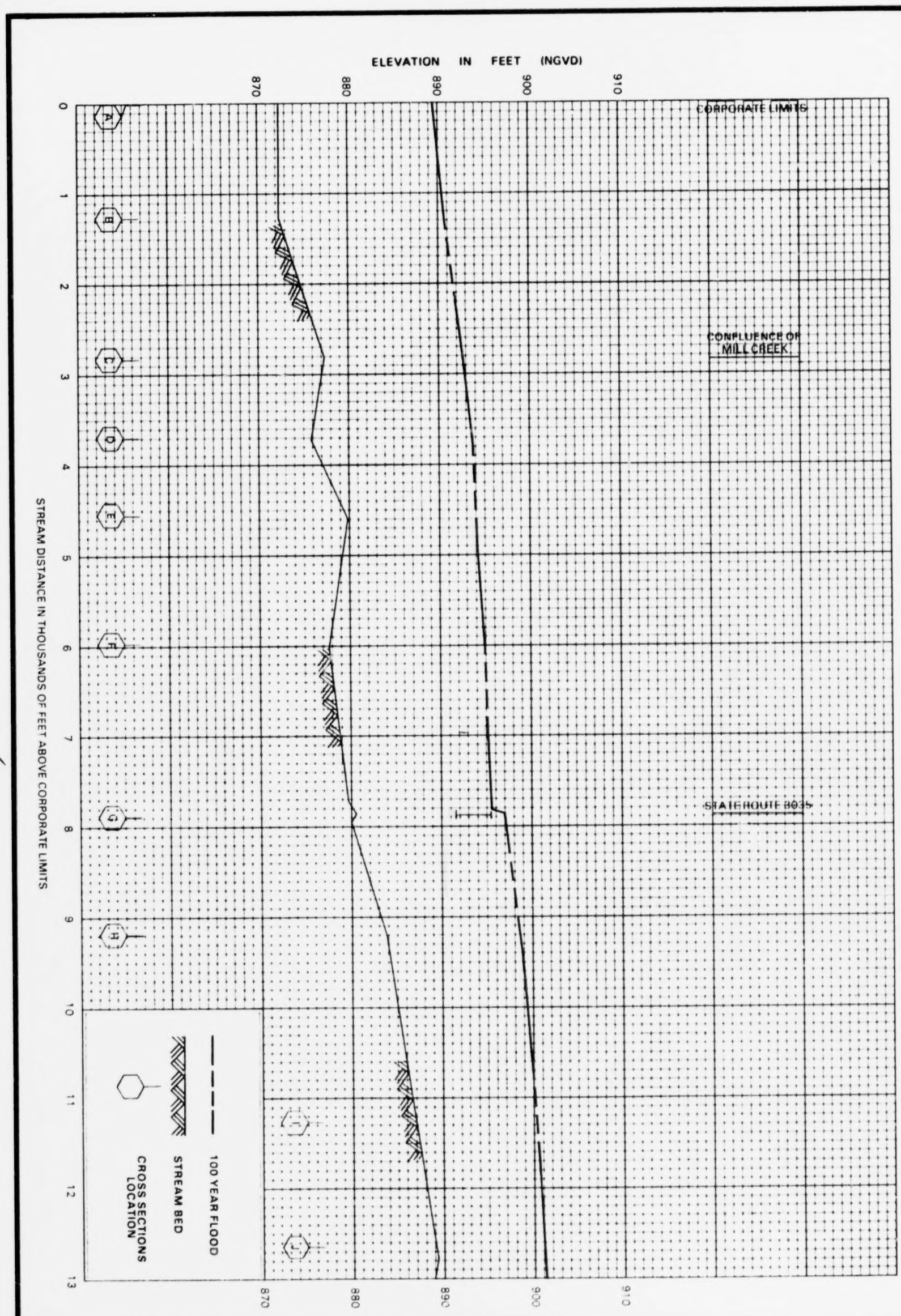
12. Federal Emergency Management Agency, Flood Insurance Study, Township of Troy, Bradford County, Pennsylvania (Unpublished).

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 1	891.54	Chiseled X in wing wall of culvert approximately 150 feet west of corporate limits of Borough of Burlington, and approximately 20 feet north of centerline of U. S. Route 6.
RM 2	900.18	Chiseled L in southwest wing wall of U. S. Route 6 bridge over Mill Creek, a tributary of Sugar Creek; approximately 0.9 mile west of corporate limits of Borough of Burlington, and approximately 300 feet northeast of county home.
RM 3	885.44	Chiseled L in concrete headwall of sewage treatment plant outfall from county home, on north side of Sugar Creek, approximately 0.9 mile west-southwest of corporate limits of Borough of Burlington, and approximately 600 feet south of county home.
RM 4	896.71	Chiseled X in center of concrete culvert, approximately 1.4 miles west of corporate limits of Borough of Burlington, approximately 20 feet north of centerline of U. S. Route 6, and approximately 150 feet east of intersection near cemetery.
RM 5	899.71	Chiseled L in concrete culvert, approximately 1.5 mile west of corporate limits of Borough of Burlington, approximately 25 feet north of centerline of U. S. Route 6.
RM 6	896.32	Chiseled L in southeast corner of abutment of Carmens Road bridge over Sugar Creek, approximately 0.8 mile southwest of county home, approximately 1,100 feet southeast of U. S. Route 6.
RM 7	896.92	Southeast corner of concrete porch at entrance to gas/grocery store approximately 1 foot above grade at first floor elevation, approximately 1.9 mile southwest of corporate limits of Borough of Burlington, approximately 50 feet north of centerline of U. S. Route 6, and approximately 3 feet south of building.
RM 8	902.88	Chiseled X in center of concrete culvert, approximately 2.2 miles southwest of corporate limits of Borough of Burlington, approximately 15 feet north of centerline of U. S. Route 6.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 9	911.67	PDH disk in U. S. Route 6 bridge over small, unnamed tributary of Sugar Creek, approximately 2.4 mile southwest of corporate limits of Borough of Burlington.
RM 10	940.82	Chiseled X in top of concrete culvert, approximately 25 feet south of centerline of U. S. Route 6, approximately 1,200 feet east of intersection of U. S. Route 6 and State Route 3019.
RM 11	968.38	Chiseled X in concrete culvert northwest of intersection of U. S. Route 6 and State Route 3019.
RM 12	931.46	PDH disk on southeast wing wall of State Route 3019 bridge over Sugar Creek, approximately 1,100 feet south of intersection of U. S. Route 6 and State Route 3019.
RM 13	930.38	Chiseled X in concrete culvert, approximately 23 feet north of centerline of U. S. Route 6, and approximately 50 feet west of drive to big, red barn.
RM 14	943.19	Chiseled L in southwest corner of U. S. Route 6 bridge over tributary to Sugar Creek, and approximately 25 feet south of U. S. Route 6.
RM 15	958.19	Chiseled X in concrete culvert, approximately 16 feet north of centerline of U. S. Route 6, and opposite end of eastbound guiderail.



FEDERAL EMERGENCY MANAGEMENT AGENCY

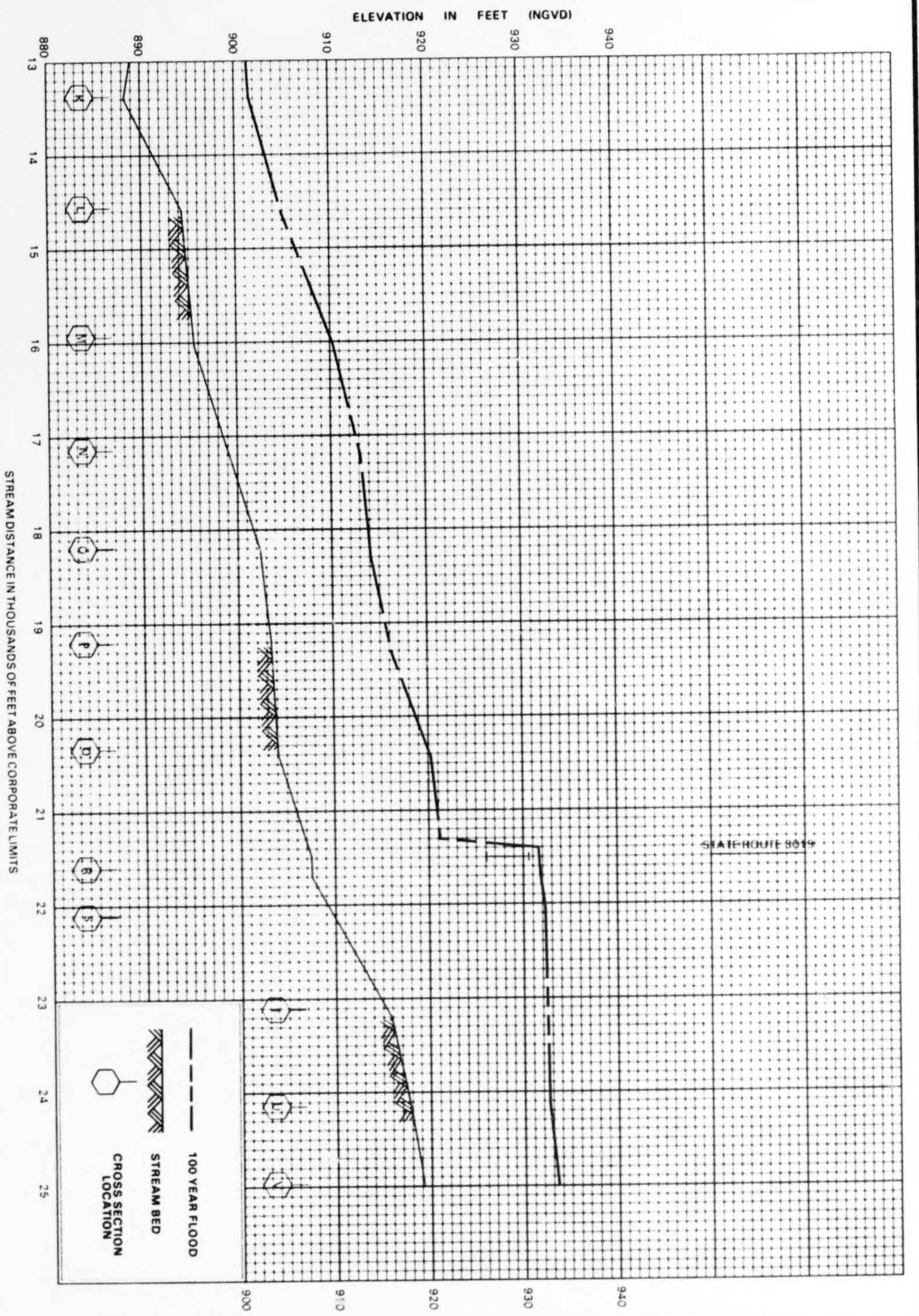
TOWNSHIP OF WEST BURLINGTON, PA

(BRADFORD CO.)

FLOOD PROFILES

SUGAR CREEK

01P



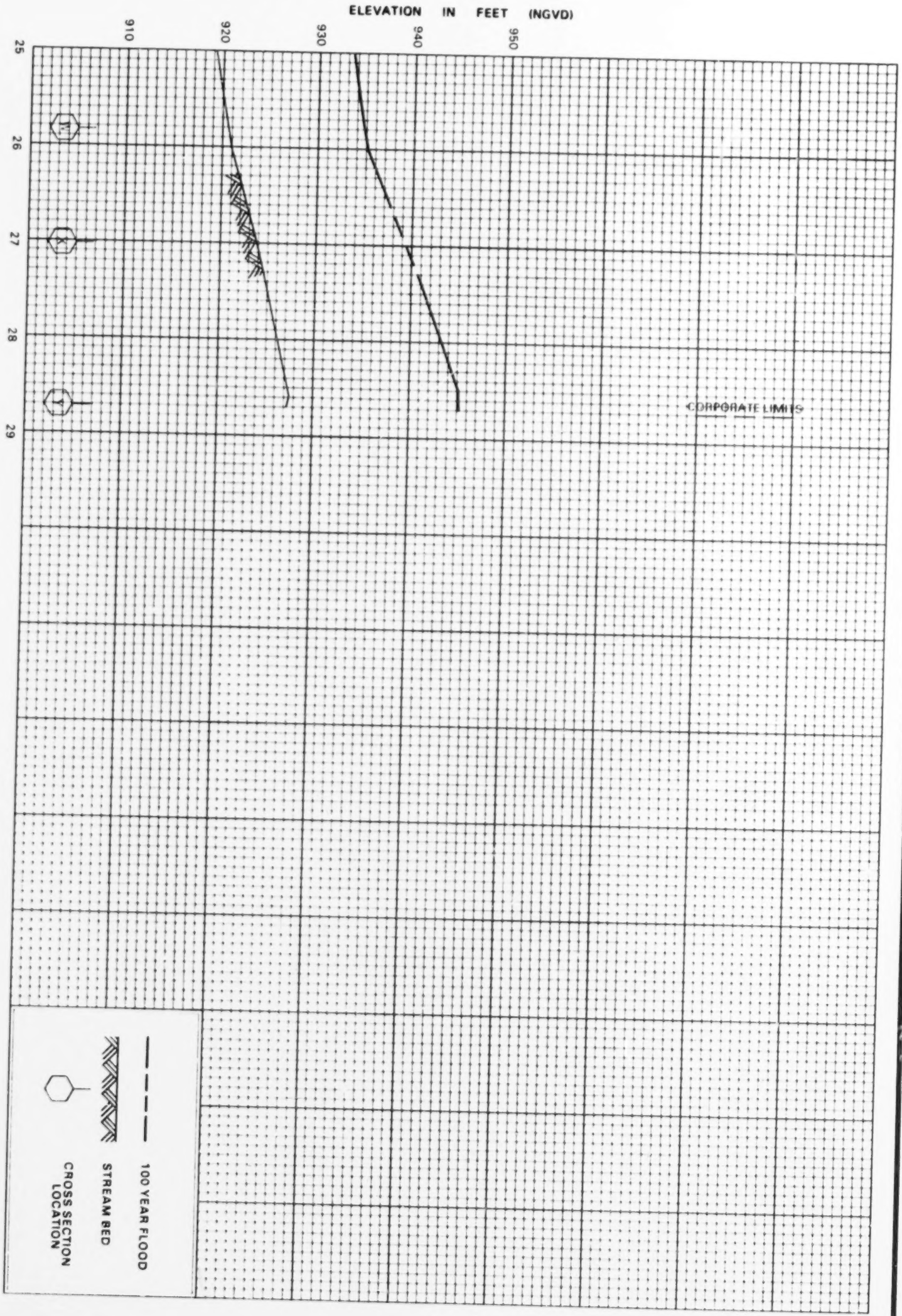
FEDERAL EMERGENCY MANAGEMENT AGENCY

02P

TOWNSHIP OF WEST BURLINGTON, PA
(BRADFORD CO.)

FLOOD PROFILES

SUGAR CREEK



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03P	FEDERAL EMERGENCY MANAGEMENT AGENCY TOWNSHIP OF WEST BURLINGTON, PA (BRADFORD CO.)	FLOOD PROFILES SUGAR CREEK